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ABSTRACT

This paper provides information to support the implementation and management of independent living services for individuals with disabilities. The paper compiles the experiences of numerous people involved in programs providing services which support disabled individuals as active consumers of commercial rehabilitative aids and devices. It documents some of the successes and some of the problems associated with those programmatic experiences. It also provides contacts within various organizations where more detailed information might be found. An introduction outlines the benefits of enhanced consumerism and the provision of support to maximize each person's capabilities to live independently. Model programs are then described, including descriptions of eight programs that provide alternative sources of financing, eight information clearinghouses, six training services, three maintenance/repair services, five used equipment clearinghouses, and two group purchasing opportunities. The paper concludes that encouraging more active participation by disabled individuals as consumers of commercial rehabilitative aids and devices is a promising and an appropriate goal for the independent living movement. A directory of the profiled programs is included in an appendix. (JDD)

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EIF/REC REVIEW PAPER

ENHANCED CONSUMERISM
WITHIN
COMMERCIAL REHABILITATION PRODUCT MARKETS:
A GOAL FOR INDEPENDENT LIVING

Kenneth G. Reeb, Jr.

January, 1986

The Electronic Industries Foundation
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Preface

Just as the strength of the independent living movement derives from the support that it provides to disabled individuals seeking to maximize their independence, the strength of this paper lies in the information it provides to support program planners and administrators in the implementation and management of independent living services. This paper is a compilation of the experiences of numerous programs involved in providing services which support disabled individuals as active consumers of commercial rehabilitative aids and devices. It documents some of the successes, and some of the problems, that are associated with those programmatic experiences. As such, this paper presents some valuable ideas and perhaps some lessons. It also provides contacts within the various profiled organizations where more detailed information might be found.

Research to identify this sample of exemplary consumer support programs involved an iterative, person-intensive process of networking. Pursuing isolated announcements or news briefs about several of the programs led to referrals of contact persons in other, similar programs. That networking process is ongoing. Awareness of other exemplary consumer support programs continues. This paper, however, attempts to describe that network, as it exists at this point in time. Distribution of this paper is intended to initiate or to expand the professional networks of others dedicated to providing support to disabled individuals for the procurement and utilization of rehabilitation aids and devices.

The success of networking, in general, is dependent upon the cooperation of the contact persons included in one's network. Fortunately, when conducting the research for this paper, the contacts this writer had the opportunity to deal with were all extremely helpful and willing to share their organizational experiences. If the openness encountered through this research is any indication of the cooperative spirit of service providers in this field in general, exchange of useful information will be facilitated.

"The independent living movement is exerting a powerful influence on both the products that are available and the ways in which they are obtained ... disabled consumers are looking for self-help alternatives to high prices." (Dixon and Enders, 1984).

Introduction

The independent living movement has been defined as: "the process of translating into reality the theory that, given appropriate supportive services, accessible environments, and pertinent information and skills, severely disabled individuals can actively participate in all aspects of society." (Frieden et al., 1979). Given this definition, nowhere does the independent living movement seem to hold more promise than in realizing more active participation by disabled individuals as consumers of commercially available rehabilitative aids and devices.

Benefits of Enhanced Consumerism

In general, being a product consumer is one very important aspect of independent living. For a disabled individual being an active consumer of necessary rehabilitative aids is critical, both as a goal of and as a tool for independent living. Not only does the individual participate more fully in an important aspect of society, but that increased participation culminates in acquisition of a device that can enhance other independent living pursuits.

One additional benefit, resulting from the encouragement of more active consumerism by disabled individuals, merits consideration. As disabled individuals become more involved in demand decisions regarding the types of rehabilitation aids that they themselves will use, the marketplace, where those devices are obtained, will be improved.

An excellent example of this result has occurred with the blossoming of the lightweight sports wheelchair market in recent years. Sleek, sporty wheelchairs were essentially nonexistent prior to the mid to late 1970's. Since that time, however, a large number of companies have entered that market, and offer a wide variety of useful and attractive wheelchairs. Today, according to estimates of a reputable market consulting firm, annual sales within the lightweight wheelchair market are

approximately \$30 to \$40 million, and should continue to grow (The Bennett Group, 1985). That forecast holds promise for both suppliers and users of manual wheelchairs.

The impetus behind this rapid expansion of the sports wheelchair market seems synonymous with the independent living movement. The growth of the market has been characterized by a concerted effort, where a number of disabled individuals simultaneously have decided to participate more actively as consumers of manual wheelchairs. The results have been extraordinary. Increased consumerism has not only proven beneficial to the more active consumers, but every person who needs a manual wheelchair has benefitted from the resultant wider product selection.

Encouraging more active consumerism within commercial markets for rehabilitation aids and devices, therefore, seems to be a very promising independent living goal. An important logistical question remains, however. How might the theory, that disabled individuals should participate more actively as consumers of rehabilitative devices, be translated into reality?

Independent Living Through Provision of Support Services

The answer to that question can be found by reexamining the introductory definition (Frieden, et al., 1979). The effectiveness of the independent living movement is founded upon the provision of support to disabled individuals; support that maximizes each person's capabilities to live independently.

Reliance upon support services is not uncommon to the "independent" consumer. In fact, all individuals require some support in order to perform as responsible consumers.

Support is often crucial when performing five basic consumer responsibilities: 1) information on available product options must be collected and evaluated, culminating in a product choice being made; 2) financing must be arranged; 3) training in the use of a product may be required; 4) upkeep of the acquired device is an ongoing necessity; 5) as consumer needs or product options change, or as the useful life of the current device diminishes, the issue regarding what should be done with that device arises.

Often the support that is available when conducting these consumer responsibilities, particularly when mass marketed products are concerned, is so pervasive that it is taken for granted. Obtaining an automobile is a case in point.

To facilitate any person's role as automobile consumer, each individual typically is inundated with information about product alternatives through the mass media. This information helps each person to make a more informed choice as to the type of automobile preferred. Once a choice has been made, financing is relatively accessible. A consumer might approach a local bank for a loan, or borrow the funding, or lease the car, from the dealer or the manufacturer. The consumer's training in the use of that automobile most likely has been extensive. Most individuals have taken driver education courses, either from school programs or from private instructional services. Each consumer's maintenance and repair responsibilities also are supported through an extensive support system, comprised of neighborhood car washes, local mechanics, and corner gas stations. Finally, when an automobile is no longer useful to the present owner, that person can exchange it for another model, or sell it through classified advertising. This scenario highlights a rather well developed infrastructure of support services available to most consumers when acquiring mass market products.

Unfortunately, such an elaborate support infrastructure is rarely as well developed within markets for specialized rehabilitative aids and devices. Information about various device options are not readily available, making it more difficult for consumers within these markets to make informed choices. Financing may not be available, or may be available only through rather bureaucratic third party payment sources. Training opportunities are not as prevalent nor as economical. Maintenance and repair services are equally scarce and costly. Finally, channels through which used equipment may be exchanged often are nonexistent, resulting in numerous still useful devices needlessly wasted.

This dearth of support services creates undue problems for disabled individuals seeking aids and devices, and indicates a role for the independent living movement: to increase consumer support to disabled individuals, thereby enhancing their role as consumers.

Exemplary Programs Provide Directions for Support

There are a number of programs around the country which provide exemplary consumer support services. Independent Living Centers, United Cerebral Palsy Affiliates, Easter Seal Societies, Societies for the Blind, and various other local associations, coalitions, and societies, are providing services which assist disabled individuals participate more actively as consumers. These programs represent a nucleus of what could evolve into an extensive support infrastructure.

The approaches used by these organizations to support consumerism merit close examination. The remainder of this paper is devoted to profiling a sizeable sample of such exemplary local support programs. By studying the strategies employed, and by disseminating information derived from that study, other organizations may replicate these models in their respective localities. So too, programs currently providing consumer support services may benefit from awareness of what is being accomplished elsewhere. In either case, promising strategies are indicated, providing potential directions for the independent living movement to proceed toward enhancing consumerism within commercial markets for rehabilitation technology.

Exemplary Consumer Support Programs Classified

To facilitate description of exemplary consumer support services, it will be useful to first classify the types of available services in to a conceptual framework. Supportive services can be categorized according to the methods used to assist individuals to be more active, responsible consumers.

As indicated earlier, the role of consumer involves a series of responsibilities requiring considerable personal investments of time and other resources. Information on available equipment options must be collected and evaluated, and financing must be arranged so as to acquire a device. Training in the use of the product may be required. Once a device is obtained, maintenance and repair become ongoing responsibilities. Exchange or disposal of the equipment is needed once its value to the user is exhausted.

Performance of these individual responsibilities can be facilitated through provision of appropriate support. The following section profiles a number of programs which are supporting disabled individuals in the conduct of their consumer responsibilities. Since obtaining financing tends to be the most critical task, exemplary financial support services shall be examined first, followed by support in information collection, training, maintenance/repair and used equipment exchange. The section closes with analysis of one other method of providing financial support: establishing group purchase opportunities.

Exemplary Consumer Support Programs Profiled

Alternative Sources of Financing

Financing procurement of rehabilitation technology is perhaps the most important problem encountered by disabled individuals. Rehabilitation aids and devices tend to be relatively high priced items because markets are small and volume sales are correspondingly low. Compounding the problem, individual financial resources tend to be disproportionately low for persons with disabilities compared to average resources of the population as a whole.

A number of third party funding programs have been implemented over the years to address this financial problem, with a great deal of success. Over-reliance upon third party payment programs, however, can lead to trade-offs. The inherent need for control by third party programs tends to dictate who makes equipment selection decisions, and what criteria go into those decisions.

A variety of creative financing programs have evolved to provide disabled individuals with alternatives. Many programs establish revolving funds from which either no-interest or low interest loans are made to persons with disabilities for the purpose of acquiring rehabilitative aids and devices. The following examples indicate ways in which financial options available to consumers of rehabilitation equipment may be expanded.

United Cerebral Palsy Association (UCPA) of Michigan, Incorporated - In January of 1982 the United Cerebral Palsy Association of Michigan, Inc. instituted an Independent Living Revolving Loan Fund (ILRLF). The primary purpose of the fund is to provide no-interest loans to disabled persons for purchase of assistive devices.

The fund initially was established through grants from the Mott Foundation and the Jensen Foundation. This money has been deposited into a local bank account. At present, the base fund is slightly over \$80,000. As of December 31, 1984, this sum has generated almost \$130,000 in direct consumer loans. Furthermore, a great deal of financial support has been leveraged from other sources as a result of the ILRLF loan activity.

The loan program is administered by UCPA of Michigan. The costs of administration are subsidized in effect because UCPA does not charge the fund for these services.

Loan applications are considered by an independent advisory committee consisting of four volunteers. The appropriateness of each application is reviewed from the standpoint of the applicant's eligibility, the risk of delinquency or default on payment, the proportion of the applicant's own resources used, and the opportunity of generating other, leveraged funds. The advisory committee, in collaboration with the applicant, determines a reasonable repayment schedule. A six percent annual interest rate is charged to delinquent payments. All loans are secured by a note payable to the Revolving Loan Fund account.

To date, the Independent Living Revolving Loan Fund has exceeded expectations. The fund has proven to be self-perpetuating, with limited cases of payment delinquency. Based on this success, the United Cerebral Palsy Association of Michigan is seeking to expand the base fund.

Project Job Site - Project Job Site, a program of the Vera Institute of Justice in New York City, has established another type of assistive device loan program financed with foundation support. The Project's mission is to foster competitive, long-term job placement for persons with visual impairments.

As part of that mission, Project Job Site secured a loan of \$60,000 from the Ford Foundation and the Manpower Demonstration Research Corporation in September of 1983 to help fund procurement of devices. The money is geared specifically to vocational applications. It can be used to obtain equipment for eligible clients (visually impaired persons in New York City) either for job acquisition, job retention, or career enhancement.

Due to the nature of the agreement between Project Job Site and the funding groups, the Project purchases each product and leases it to the client on a long term basis. This period can be as long as six years, depending upon the expense of the equipment and the client's financial situation. The Project retains ownership and maintains adequate warranty and insurance protection. Terms of the original loan dictate use of funds only for equipment purchase, not for related support costs such as training or maintenance.

Applications for lease arrangements are submitted to a seven person Loan Committee, which considers the applicant's eligibility, the nature of the request, and appropriate lease terms. In addition, the committee seeks to ensure that the funds will not compete with or supplant other sources of financing. The possibilities of leveraging additional money are also considered.

Lease payments are due monthly. Since Project Job Site received the fund money at a seven percent interest rate, this cost is recovered in the lease payments. At the end of the long term lease period, the lessee has the option to purchase the equipment at its full market value after depreciation. Usually this residual value is placed at \$1.00.

Between April 1984 and June 1985, nine leasing arrangements have been made, totalling approximately \$26,000 of the \$60,000 fund.

The Florida Lions Conklin Center - The Conklin Center is a residential rehabilitation facility for multihandicapped blind individuals located in Daytona Beach, Florida. As part of its overall rehabilitative mission, the Center administers a High Technology Rent Fund.

Although technically a rental program, the Fund is designed to help meet the relatively long term equipment needs of each client. A rental can be arranged for as long a period as five years, after which time ownership is transferred to the equipment user for no additional charge. No interest is charged to the renter, but all other costs, including the purchase price of the device and its maintenance and repair costs, are reflected in the monthly rental payments. In essence, then, the High Technology Rent Fund is a no interest installment loan plan used to finance acquisition and service of expensive rehabilitative devices.

Management of the fund is the responsibility of the Florida Lions Conklin Center for Multihandicapped Blind, Cooperative Board. That group selects equipment appropriate for use in the rental program, reviews rental applications, and sets rental rates.

The program was funded initially through a grant from the Florida Division of Blind Services. The first piece of equipment was purchased in 1983. The value of the program has been demonstrated through the fact that, at present, the fund has been exhausted. The Cooperative Board is awaiting the accrual of sufficient rental payments to acquire additional equipment in the future.

Independence, Incorporated - Independence, Incorporated, a Lawrence, Kansas Center for Independent Living (CIL), administers three no-interest, no collateral loan programs. One helps finance housing modifications, a second is for emergency situations, such as for temporary shelter, and the third is for procurement of adaptive equipment.

Five years ago Independence, Inc. established a revolving fund to support operation of the three loan programs. Money for the fund is obtained annually from two principal sources. Originally, special arrangements were made with the Rehabilitation Services Administration to appropriate federal funds from Title VII (of the Vocational Rehabilitation Act) to replenish a portion of the revolving loan fund each year. In addition, Independence, Inc. has secured some County mill levy money each year for inclusion in the revolving fund. Last year federal Title VII funds expired, but Independence, Inc. was able to replace those federal funds with a state match from the Kansas Division of Rehabilitation Services.

Each year the federal/state and county funding sources have accounted for \$1,500 for the housing adaptation loan program, between \$1,000 and \$2,500 for the emergency loan program, and \$1,000 for the adaptive equipment loan program. Each program's annual budget is also supplemented with repayments on loans made previously. Between fiscal years 1980 and 1985, Independence, Inc. made loans totalling \$4,960 for housing adaptations, \$13,484 for emergency needs, and \$2,242 for adaptive equipment.

Anyone with a disability, residing within a two county area, is eligible for the adaptive equipment loan program. Applicants submit their loan requests to Independence, Inc. staff or the Independence, Inc. Board of Directors. The Executive Director of Independence, Inc. is responsible for review of the request and for its acceptance or denial.

Criteria considered in the application review process are similar to other such loan programs, and include availability of other resources with which to acquire necessary equipment. Individuals may receive only one loan of up to \$250 within any 12 month period. As mentioned earlier, no interest is charged on a loan and no collateral is required.

The loan applicant and the Executive Director of Independence, Inc., collaborate to determine a reasonable repayment schedule. Reconsideration of those terms is possible if the applicant's financial situation changes.

Easter Seal Society of Iowa, Inc. - The Easter Seal Society in Des Moines, Iowa, has been operating an Equipment and Therapeutic Services program since the early 1960's. A principal objective of the program is to support community living for persons with disabilities by helping those individuals obtain necessary rehabilitation equipment. The program is not designed for persons who reside in licensed care facilities.

The Equipment and Therapeutic Services program offers a variety of innovative services. For example, to assist persons procure and utilize necessary rehabilitation equipment, the program operates an equipment loan service, a maintenance/repair operation, and a direct financing service. In addition, the Society benefits from a standard price discount on assistive equipment acquired through a local dealer. Until recently, the Society made that discount available to individual clients as well. Each of these support services shall be described in more detail in appropriate sections of this program analysis.

Four years ago the Equipment and Therapeutic Services program instituted a Special Assistance Grants service designed to offer a financial alternative for the purchase of rehabilitation equipment. At this time, the Special Assistance Grants service is no longer available due to a lack of funds to support the service. If the Society were to obtain additional funds in the future, the grant service would be reinstated. Despite the current operational status, however, the Special Assistance Grants service remains a model financing program. The operational framework of the service, and the experiences of the Easter Seal Society warrant closer examination.

The Special Assistance Grants service made grant money available to pay up to 50 percent of the price for equipment, not exceeding \$300. Grants were made for automobile hand controls, wheelchair lifts, wheelchair ramps, powerized wheelchairs, and communication aids, among other devices.

To qualify for a Special Assistance Grant, each applicant was required to complete the program's Basic Information Form, which included standard personal background information, equipment desired, and a physician's prescription. The form also released the Society from liability for any harm resulting from misuse of the specified equipment. This basic form is used for the Society's other equipment services as well.

Based upon review of an applicant's Information Form, Equipment Services staff would determine whether or not to authorize a special grant. If an application was accepted, a letter of authorization was sent to the applicant detailing the amount and terms of the grant. This letter had to be presented to the equipment dealer within a three month period. Purchases made either before the date of authorization, or more than three months after authorization would not be covered by the grant. The Society required that the dealer send a bill directly to the Society. Reimbursement for the amount of the grant, in turn, was made directly to the dealer.

When grant money was available, the Special Assistance Grants service experienced considerable success. In its first year of operation, four years ago, the Society budgeted \$6,000 for grants. Demand for the grants was such that, by the last year of the service (this past fiscal year), the Society had increased allocations to \$9,000. Despite budgetary increases, the Special Grants fund typically was exhausted by May of each fiscal year (September 1 to August 31).

In the last year of the operation, forty-five individuals received grant assistance.

Associated Services for the Blind - A Philadelphia-based service organization with a national focus, Associated Services for the Blind (ASB) subsidizes purchase of selected high technology equipment. Through their Electronic Aids Program, ASB administers a private grant fund, which is renewable each year. Grant money is used to subsidize individual consumer purchases of Optacon and Versabraille products.

Any person demonstrating a need for such equipment is welcomed to apply for a subsidy. There is no means test associated with the application process, which entails completion of several forms. A committee of three ASB staff members are responsible for reviewing requests.

Successful applicants are required to contribute only a fixed amount toward the purchase of an Optacon or a Versabraille. ASB covers the remainder of the cost. There is some leeway as to the total fixed contribution, which is approximately of \$1,550 for the Optacon and \$4,000 to \$5,000 for the Versabraille. If applicants are unable to cover their portion of the total cost, they are referred to other potential sources of funding, such as the Sensory Aids Foundation in California or an applicant's employer.

Through the Electronic Aids Program, ASB has distributed almost \$1 million in price subsidies over the past ten years.

Fort Collins Community Development/Block Grant Program - In 1984 the city of Fort Collins, Colorado established an Equipment Fund with federal Community Development Block Grant money. Fund dollars are used to assist disabled residents of Fort Collins procure necessary rehabilitation equipment where no other source of funding is available.

To be eligible, applicants must reside within Fort Collins and have low to moderate incomes, based on HUD income guidelines. Qualified applicants are eligible for total, non-repayable

grants. In rare cases, moderate income applicants may receive low interest loans through the Fund.

Applications are submitted to the Fort Collins Commission on Disability, an Advisory Board of the City Council, for review. The Commission's recommendations are then forwarded to the Community Development Block Grant Office where a final decision regarding funding is made.

Since inception of the program, a number of products have been purchased ranging from environmental controls, to electronic communication boards, to Teletypewriters for the Deaf (TTY's), to computer peripherals. More than half of the grant recipients have Cerebral Palsy, most with additional disabilities as well. Another 30 percent have terminal neurological diseases, or have disabilities resulting from a traumatic accident or aging. Individual grants have ranged between \$150 and \$4,500.

The STORER Center - The STORER Center is a computer access center under the auspices of the Cleveland (Ohio) Society for the Blind (CSB). STORER is an acronym for Specialized Training Orientation and Rehabilitation utilizing Electronic Resources, as well as an acknowledgement of one of the Center's primary sources of support: the George B. Storer Foundation.

The STORER Center offers a comprehensive array of consumer support services, including support for financing acquisition of specialized computer equipment, orientation and training in the proper use of that equipment, engineering support services and short-term rental of equipment when needed. Strategies for obtaining financing for system purchase will be detailed in this section. Other aspects of the STORER Center program are discussed in later sections of this document.

The STORER Center has recently instituted two services which are designed to assist visually impaired clients to finance acquisition of specialized computer aids. Although to date neither service has been in operation for a full year, both represent very innovative financing alternatives.

The first service is operated in collaboration with the Hebrew Free Loan Association (HFLA) Fund of Cleveland. The HFLA was set up originally to assist Jewish immigrants in the establishment of small businesses. Apparently, the need for such venture capital has been fairly well saturated by now, releasing significant portions of HFLA resources for other purposes.

In response to a perceived need in the community, HFLA set aside \$25,000 into a revolving, no-interest loan fund. This fund is intended to help severely visually impaired individuals finance acquisition of specialized electronic equipment with vocational applications. The fund can support individual loans up to \$5,000 which are provided with no interest or finance charges. Additional loans will be made as the fund is replenished through loan repayments.

Trustees of the CSB and the HFLA were instrumental in developing the no-interest loan service, which is reflected in the cooperative way in which it is managed. Because of their established expertise, HFLA is responsible for the actual administration of each loan. Loan applicants are required to follow HFLA procedures, including completion of the HFLA standard application form, and a routine credit check.

Loan collections also are handled by the HFLA. Loans from the HFLA are only available for those individuals who are unable to secure bank or other financing, but who otherwise satisfy the loan requirements.

The STORER Center, CSB collaborates with HFLA in two crucial ways. First, Center staff are responsible for screening and referral of potential loan applicants. Screening criteria include vocational potential attributable to the requested equipment purchase and the applicant's (or family's) capability of repaying the loan.

As its second role in the no-interest loan service, the CSB underwrites each HFLA equipment loan. The CSB has legally designated \$25,000 of its endowment fund as insurance against default on any of the no-interest loans. If someone were to default, the CSB would buy the equipment from the HFLA. As such, the relationship between the CSB and the HFLA is, in concept, a guaranteed loan arrangement. The costs of risk and other costs of providing credit are shared by the two organizations, creating somewhat of a leverage effect.

The second financing service being pioneered by the STORER Center, CSB is designed for use when the no-interest loan funds are exhausted. The CSB has fostered working relationships with several commercial banks in the area to provide low interest, specialized equipment loans to selected clients of the STORER Center. The arrangement between the CSB and each bank is very similar to that maintained with HFLA. In the case where a loan request is accepted, the bank would administer that loan and the CSB would underwrite it. Each bank would utilize funds which are earmarked as concessionary, meaning they are funds which that bank can legally lend at below prime interest rates.

Since both these financing services are new, they are as yet relatively untested. Two no-interest loans have been made to date, with no instances of default. The director of the STORER Center acknowledges that Center staff have been, intentionally, very selective in referring clients as loan applicants. In concept, however, both financing services seem very promising. In particular, the common feature of both services, where the CSB underwrites each loan, is very creative and certainly warrants further attention.

Each of the programs profiled here are slightly different, yet innovative and apparently successful, approaches to consumer financing for procurement of specialized equipment. Each loan program encourages a more active consumer role on the part of disabled individuals. Successful loan recipients have the responsibility of repaying the principal and, in some instances, any additional interest costs. In exchange, these individuals gain access to private finances which allow them the flexibility of obtaining products which they themselves demand/desire.

Information Clearinghouses

Adequate and timely information is critical in the demand process. The simple economic demand model assumes that each consumer is perfectly knowledgeable about the range of choices available. In reality, of course, consumers typically have very limited knowledge and require information to apply sound judgment to a product purchase.

Two types of information are important to consumers considering rehabilitative products. First, comparative product information is crucial. Given that many disabled consumers have trouble affording specialized, high ticket products, they certainly cannot afford to choose products which do not meet their needs adequately. Timely information regarding comparative ease of use, price, effectiveness, serviceability and other features, will facilitate selection of the proper device for a given need.

The second type of information valuable to consumers relates to financing. The extensive array of third party funding programs and creative private financing options creates an often confusing predicament for the rehabilitative device consumer. Information regarding eligibility requirements, device coverage and application procedures can assist individual consumers in sorting out their financing options.

These needs for information currently are being addressed by a variety of programs using a number of creative approaches.

National Rehabilitation Information Center - The National Rehabilitation Information Center (NARIC), with support from the National Institute of Handicapped Research (NIHR), has compiled possibly the most extensive database of rehabilitative product information. That database, ABLEDATA, provides a national listing of more than 13,000 commercially available assistive devices. Descriptive information and fairly current prices are often included, permitting some basis for comparison between products. ABLEDATA is computerized allowing direct on-line access anywhere in the country or internationally, through BRS, Inc., a commercial database storage and retrieval service. ABLEDATA also can be searched by information specialists at NARIC for persons without direct computer access.

Carroll Center for the Blind - Between 1979 and 1984 the Carroll Center for the Blind published a series of reports entitled "Aids and Appliances Review." These reports contain excellent comparative analyses of various types of products useful to persons with visual disabilities, including handwriting guides, labelers,

computer access equipment, and aids for activities of daily living. Each analysis provides objective information regarding the relative merits and problems of each product in a certain category. Prices also are given.

Although the "Aids and Appliances Review" has been discontinued recently due to lack of funding, the reports remain as excellent examples of how comparative product information can be compiled and presented. The program's fate points out the importance of cost factors to the provision of information services. Delivery of comparative information, although potentially very valuable, has associated collection, upkeep and utilization/dissemination costs that cannot be ignored. Presumably, however, there are cost advantages that can be realized by organizations providing information services. Collective acquisition and dissemination is often more cost-effective than are individualized efforts.

Cheever Publishing, Inc. - Cheever Publishing uses three approaches to provide comparative product information commercially. They publish Accent on Living, a quarterly magazine which regularly features a section on new products. Their associated Accent on Information, Inc. (AOI), is a computerized listing of commercially available products, do-it-yourself ideas and other pertinent consumer information. The database is stored on a mainframe computer, which AOI staff interrogate in response to customer requests. Cheever also publishes a variety of special publications. Two exemplary booklets are the periodically updated, "Accent on Living Buying Guide" and "An Accent Guide: Wheelchairs and Accessories."

The Assistive Device Center - Associated with the School of Engineering of the California State University in Sacramento, the Assistive Device Center (ADC) offers a wide variety of professional support services to help clients obtain and utilize rehabilitative equipment.

The ADC provides product information in several ways. It houses a Resource Center which maintains an extensive library that is available to visitors. Center personnel also are available to respond to written or verbal requests for product information.

Similar to the National Rehabilitation Information Center's (NARIC's) ABLEDATA system, the ADC Resource Center manages an Assistive Device Database System (ADDS). ADDS provides information about products available to persons with a variety of functional limitations, including a description of the product, where it may be obtained, skills necessary to operate it, and approximate price. The database also contains other information

pertinent to procurement of an assistive device, such as bibliographic citations, and lists of useful resource people and support services. Information contained in the ADDS can be obtained by contacting the ADC Resource Center, or by purchasing copies of the entire system, if desired.

ADC helps disabled individuals determine which assistive devices are useful to them.

Part of that assessment process includes opportunities for each client to try different products to help them decide which is most appropriate. Where needed, ADC staff will modify equipment to tailor it more effectively to an individuals' needs.

Most support services provided by the Assistive Device Center are available on a fee-for-service basis. A few are free of charge.

The STORER Center - The Cleveland Society for the Blind's STORER Center presently houses eleven computer work stations where visually impaired individuals can gain hands-on exposure to computer aids. The Center will expand the number of stations to fourteen in the near future. The stations are outfitted with an array of computer equipment. New equipment has been added to the Center's inventory annually in an attempt to keep abreast of emerging technological capabilities. Inventory stock is funded partly through the Ohio Rehabilitation Services Commission, and partly through private sources, primarily the George B. Storer Foundation.

In addition to providing hands-on opportunities, STORER Center staff serve as valuable product information specialists. Center staff regularly conduct orientation sessions for disabled persons and inservice for rehabilitation professionals. Those workshops strive to "de-mystify" computer technology and demonstrate its vocational and educational potential. Staff members also try to be available to provide information on a more informal basis.

Society for Technology and Rehabilitation - In 1979, the Alberta (Canada) Children's Hospital, in collaboration with the Cerebral Palsy Association in that region, instituted a Technical Resource Centre (TRC). Since that time, the TRC has changed its name to the Society for Technology and Rehabilitation to reflect its new status as an independent organization, although it still maintains very close ties with its founders.

The Society provides a number of services which support procurement and application of rehabilitative aids and devices. The Society houses a reference library of product literature, catalo-

gues, technical journals and other information. The Society also maintains an inventory of communication, mobility and environmental control devices for temporary loan to enable clients to actually experiment with equipment prior to procurement. Qualified staff are available to assist in device prescription, and, to a limited extent, adaptation and repair.

The Assistive Device Center, the STORER Center and the Society for Technology and Rehabilitation exemplify the role that rehabilitation institutions and professionals have traditionally held. Each typically serves as a valuable resource for comparative product information. This role will likely continue, and should be encouraged. It represents a critical support service for persons with disabilities asserting their consumer responsibilities.

The Committee on Personal Computers and the Handicapped (COPH-2)
- A Chicago-based, nationally focussed consumer organization, COPH-2 (pronounced "Cope-2") offers a resource library service to its membership. COPH-2 also owns several donated personal computers, with specialized accessories, which are loaned to members permitting trial use prior to any purchase decision. The organization convenes regular bi-monthly meetings, which often facilitate informal exchange of product information. This informal peer exchange process can be a valuable means of acquiring product information that often is not be available elsewhere.

In addition to the utility of information which enables sound product comparisons, information outlining third party and personal product financing options also has great value to consumers.

PAM Assistance Centre - The PAM Assistance Centre in Lansing, Michigan, addresses some of those informational needs. Since 1979, the Centre has been addressing the needs of disabled individuals concerning acquisition and use of assistive devices, primarily as they relate to education and independent living. As part of their informational services, the Centre published a 22 page resource guide entitled "Funding Assistive Devices." The guide contains a directory of potential funding sources ranging from federal and state governmental programs to various voluntary and service organizations. It also presents guidelines on how to obtain funding.

In tandem with the Physically Impaired Association of Michigan (PIAM), the PAM Assistance Centre is in the process of initiating a second, more comprehensive center devoted to the use of high technology for all disabling conditions. Initially, this "Living and Learning Resource Centre (LLRC) will focus on assisting blind

individuals to use rehabilitative and independent living aids.
The Centre is working in conjunction with the Michigan Commission
for the Blind.

Training Services

To potential consumers, training in the appropriate use of a device is closely related to acquisition of product information. Training and product information gathering both are processes involving familiarization with equipment.

Obtaining training in the use of rehabilitative technology can be difficult, particularly in comparison to other mass marketed products. Several reasons can be hypothesized for this relative difficulty. First, the number of persons requiring training for specialized products are not as large as for mass marketed devices resulting in higher unit training costs. Second, specialized product training has been conducted predominantly by health care professionals or by commercial representatives whose time is relatively expensive. Finally, commercial rehabilitation product markets are relatively new phenomena. The training infrastructure to support proper use of new rehabilitation devices is still developing. It is not as mature as training support systems associated with other product markets.

Development of the training infrastructure is being achieved through training programs at localities around the country. Replication of these exemplary, operational training programs will result in expansion of such services.

The Assistive Device Center - The Assistive Device Center (ADC) on the California State University campus in Sacramento provides training in the use of equipment on a fee-for-service basis. Professionals from diverse disciplines, including biomedical engineering, psychiatry and speech pathology, are available for training. In cases where there is need for a communication aid, training in the use of that device will include teaching language and interaction skills.

Training at the ADC also is provided to other professionals on a consultative, in-service basis.

The STORER Center - Training is another service provided at the comprehensive STORER Center of the Cleveland Society for the Blind. It is an integral component of their equipment orientation, evaluation, selection and training process. With a focus on application of electronic technology useful to persons with severe visual impairments, the STORER Center is a certified regional training center for many of the commercial companies producing rehabilitation equipment in this field.

Financial support for training is generated primarily through fee-for-service arrangements with state vocational rehabilitation agencies, with some support from private sources. Slightly more than half of the persons with disabilities who are trained by the Center are clients of the Ohio Bureau of Services for the Visually Impaired (BSVI).

As is the case with the Assistive Device Center (ADC) in Sacramento, training at the STORER Center is provided by professionals. At the STORER Center, two of the three full time staff are blind individuals who utilize access technology themselves. Professional staffs at either center not only provide training directly to end users of rehabilitation equipment, but also serve as regional inservice training centers for other professionals involved in the application of rehabilitation and computer access technology. As such, both the STORER Center and the Assistive Device Center are integrally involved in extending the training infrastructure for rehabilitation technology.

In contrast to formal training operations, which utilize professional staffs who provide both direct client service and inservice to other professionals, there are a number of more informal training programs which rely heavily on peers for training. This method allows organizations to tap the valuable experiences of persons with disabilities, who have used rehabilitation equipment. Peer group training also can introduce an additional intangible into the training process which is difficult for professionals to replicate. Disabled trainees often are able to gain important motivational feedback by working with persons who have similar disabilities and who have successfully mastered the use of given pieces of equipment.

In addition to valuable intangibles that can result from training programs which utilize persons with disabilities as teachers, this more informal training approach typically is very economical. Training often is provided on a volunteer basis.

Center for Computer Assistance for the Disabled - A nonprofit organization in Arlington, Texas, The Center for Computer Assistance for the Disabled (C-CAD) has as its mission, "self-respect for the handicapped through jobs." The agency pursues this mission through the support of computer use. One such support service is computer training.

The Center consists of a 25-member working Board of Directors, two part-time administrative staff persons and a 20-member Board of Advisors, many of whom have severe disabilities.

In over two years of operation, the Center has amassed a large supply of donated computers, with a more limited number of peripherals and software. This equipment is used both to support a lending program and to enable clients of the Center to be trained in the use of computers. Clients include disabled individuals, counselors and other rehabilitation professionals interested in increased applications of computer and computer access technology. The Center has provided over 3,000 hours of consultation time for the purpose of furthering the use of computers by persons with disabilities.

Committee on Personal Computers and the Handicapped - As part of its mission to increase the awareness of the potential of computer technology for persons with disabilities, the self-help consumer organization CPH-2 provides regular training opportunities for its membership. CPH-2 convenes bi-monthly meetings in the Chicago area, which serve as forums for information exchange and training. Many members set up their own computer systems and invite informal inquiries and hands-on opportunities from interested parties. In addition, more formal two-hour presentations are given routinely at these meetings on selected topics.

Besides bi-monthly meetings, CPH-2 members are always available to field questions from other members and persons at-large. The informal, network structure of the organization readily allows training requests to be handled on a person-to-person basis. The group owns three donated personal computers which are loaned to members wishing to gain familiarity with the equipment. It is not uncommon for more experienced computer users to provide home visits to train members who are learning the capabilities of a computer for the first time.

Computers for Severely Disabled Project - The local Easter Seal Society in Santa Cruz County, California has responded to a perceived need in their community for services to support use of computers as rehabilitation aids. Any person who resides in the county, has a severe disability, and expresses a desire to utilize computer technology for the purposes of environmental control, rehabilitation, vocational or educational pursuits may request assistance from this program.

The Project provides several training programs in the use of computer equipment. First, concurrent with a multidisciplinary assessment of the computer and interface needs of the client, the Society requires that each applicant attend a 17 week computer course offered at a local college. If transportation is a problem, a similar orientation/training course is provided at the

client's residence. Second, the Project has a lending library of computers, peripherals and software which can be borrowed by clients to try out at home. A volunteer network of technicians and other experienced users is available to tutor clients when needed. Finally, one dedicated volunteer, who himself is severely disabled, offers a transition home to computer trainees and provides intensive support during the training process.

Similar to other self-help support programs, the Computers for Severely Disabled Project relies principally upon volunteers to provide training and other support in the appropriate use of rehabilitation technology.

Columbia Lighthouse for the Blind - In the past year, the Columbia Lighthouse for the Blind in Washington, D.C., in collaboration with the Hadley School for the Blind in Winnetka, Illinois and the American Foundation for the Blind in New York City, pioneered a computer training format for persons who are blind or who are otherwise severely visually impaired. Conceptually, this format contains elements of both the professional and the peer group training models described above.

A series of five Saturday classes, each four to five hours in length, were held to teach a group of fifty enrollees appropriate uses for various computers and specialized peripherals. Instruction was provided by a number of guest teachers, each of whom was an actual user of specialized sensory products. In most cases, these peer instructors were retained on a volunteer basis, although three of them received nominal honoraria.

In addition to utilization of volunteer, peer instruction, other costs of the pioneer project were minimized. Physical space was donated by the Columbia Lighthouse and materials were donated by the three sponsoring organizations. A few pieces of equipment were supplied by the Hadley School, but most were brought by the instructors.

A tuition fee of \$50.00, charged to each participant in the course, was used to offset various expenses including honoraria, custodial support, and lunches supplied to the enrollees and instructors.

Because of the success of this pioneer training project, the Columbia Lighthouse for the Blind is planning to offer similar programs on a regular basis in the future.

Maintenance/Repair Services

Given the difficulty of the procurement process for rehabilitation equipment due to financing limitations and paucity of comparative product information, maintenance and repair of a device, once it has been acquired, become particularly important responsibilities.

As is the case with other aspects of the demand process, however, maintenance or repair of specialized rehabilitation aids have unique problems within rehabilitation product markets. Many third party payment programs do not cover routine maintenance costs. Product distributors typically maintain equipment that they rent, but, beyond the terms of the manufacturer's warranty, they must charge for maintenance of products which are purchased. Access to such service, then, reverts to a problem of financing. Repairs for some products can only be handled by the manufacturer, creating a situation where the user must either endure the malfunction, accept a loaner which may or may not be suited to the person's needs, or go without use of the device for often an extended period.

In many respects, the problems related to the supply of maintenance or repair services outlined above can be attributed, again, to two general phenomena existing in markets for rehabilitation equipment. The first is the problem of low volume. The relatively small demand for such maintenance and repair services tends to make provision of such services costly, and in some cases, uneconomical. The second factor is that many markets for rehabilitation aids are so new that support services, such as product maintenance and repair, are relatively underdeveloped. The infrastructure should develop further with time. There may be ways to accelerate that process.

From the consumer's perspective, persons with relatively severe disabilities frequently are incapable of conducting their own routine service of a piece of equipment. Instead, they must rely on a third party, such as family or friends, for that responsibility, at that person's convenience. When a product is relatively sophisticated, such as a powerized wheelchair, electronic communication aid, or computer accessory, neither the user, nor family nor friends tend to have adequate technical expertise to maintain or repair the equipment.

As with other problem areas associated with demand for rehabilitation technology, a number of programs have evolved to deal with maintenance and repair needs at local levels.

Eastern Paralyzed Veterans Association (EPVA) - For the past seven years, Eastern PVA, in Queens, New York, has provided a very extensive wheelchair repair service. Their operation is housed in a large shop in the Queens area. Five mobile units provide home visits within a 20 mile radius of Manhattan, a 30 mile radius of Newburg, New York and all of Long Island.

The service originated from a perceived need of the Eastern PVA membership. In addition to serving the 1800 organizational members, the service is now available to non-members as well.

Costs of maintenance or repair are charged on a fee-for-service basis, and are as follows. If a road call is required, there is a \$25.00 service charge and \$27.00 per hour for labor. If the customer can bring the wheelchair to the shop, there is no service charge, only the hourly labor cost. Mechanics are trained internally for work on most manual chairs. They go through seminars conducted by Everest & Jennings and Invacare service representatives to learn to work on powerized wheelchairs.

The Wheelchair Repair Service also acts as a licensed dealer for several wheelchair manufacturers. Although they do not rent wheelchairs, they do stock some which can be loaned to customers while their own are serviced. New wheelchairs are also available for purchase through EPVA. Discounts are available.

The provision of wheelchair parts is where the Eastern PVA renders perhaps the most valuable service. They stock nearly \$1/4 million in inventory parts. They are able to buy in relatively large volume occasionally resulting in significant price discounts on parts. Some of these savings are passed on to customers, and other portions are used to subsidize other aspects of their operation. Discounts, varying in rate, are given to all customers.

Adaptive Living for Physically Handicapped Americans - ALPHA I, an independent living center with three office locations in Maine, operates a wheelchair repair service. Although not to the scale of the Eastern PVA program (a case of basic economics: there is not enough need in their service area to support operations of that scale), ALPHA I employs a full time staff person, who has been certified in power wheelchair maintenance for both Everest and Jennings (E & J) and the Invacare Corporation, to service client wheelchairs.

Easter Seal Society of Iowa, Inc. - In order to support their rather extensive equipment loan program (described in the following section), the Easter Society of Iowa operates an equipment repair service. The Society employs both a full time and a part time technician to maintain and refurbish some 13,000 pieces of equipment owned by the Society. They have a repair shop equipped with many tools and parts necessary to repair most types of equipment.

Used Equipment Clearinghouses

The durable nature of many types of rehabilitation equipment, combined with the fact that sometimes one person's needs for such equipment do not last as long as the equipment itself, allows for some creative approaches for recycling used equipment. Used equipment is being reutilized in three primary ways.

The first approach is to use equipment for hands-on training purposes. Organizations such as the Cleveland Society for the Blind's STORER Center, CPH-2 in Chicago, and the Easter Seal Society of Santa Cruz, California each maintain inventories of used, but fairly current rehabilitative products for training of their clients. Additional details are provided in a preceding section on equipment training.

The second manner in which exemplary programs have reutilized used equipment is through implementation of loan closets. The distinguishing characteristic of this approach is that used products are stocked and lent to persons with disabilities to meet their temporary needs. Instances of temporary need for loaned equipment include situations where one's regular aid is being serviced, where one's disability is acute rather than chronic, or when an individual has been disabled recently and requires use of a temporary aid until another can be purchased. A distinction is being made here between used equipment being employed temporarily for training purposes versus temporary use for other needs.

Community Loan Closet for Neurologically Impaired - A group of health care professionals in Fort Collins, Colorado have formed a volunteer organization called the Community Rehabilitation Service for Larimer County. The principals of the organization, many of whom are closely associated with the local Poudre Valley Hospital, have recognized a need in the community to extend rehabilitative services beyond the institutional confines of the hospital.

The group sponsored an initiative to institute a loan closet of high technology assistive devices on a temporary basis. The primary intent of the service is to facilitate a disabled person's transition from an acute care setting to community living. Other temporary equipment needs, such as short term use prior to acquisition of a new piece of equipment, also are recognized.

Apparently the Community Loan Closet for Neurologically Impaired is still very new. The volunteer group has secured some funding (\$20,000) through the City of Fort Collins Community Development/Block Grant Program. Other funds are being sought to

supplement this initial sum in order to obtain a core stock of high technology equipment for the loan service.

Although the program is still in its implementation phase, the operational plans, once enough equipment is acquired, are well developed. The loan closet will contain a variety of rehabilitation devices, including electronic communication aids, wheelchairs, transfer devices, specialized computer interfaces, and sophisticated aids for activities of daily living. Centralized storage space for these products will be available from the Poudre Valley Hospital.

The process whereby a client obtains a loaner device is outlined as follows:

- Each request for equipment must be accompanied by a prescription from a physician. In addition, each borrower must sign a standard release form which details the terms of the loan, and waives Community Rehabilitation Service liability from injury incurred through use of the equipment.
- The borrower is responsible for pick up and return of the equipment. Routine care of the equipment, and cleaning prior to its return also are stipulated.
- The equipment is loaned for a maximum of six months. After three months, the borrower is expected to formally renew the loan agreement.
- In cases where a piece of equipment requires fitting to an individual's particular needs, or where instruction in the use of the device is called for, the borrower is required to work with a therapist to obtain the necessary support.
- A nominal fee will be charged to each borrower to be applied toward the long-term maintenance costs of the equipment.

Administration of the loan closet, as well as maintenance/repair between loans, will be conducted by volunteers.

The STORER Center - In keeping with their commitment to a comprehensive array of technology support services, the STORER Center of the Cleveland Society for the Blind also operates a small, but growing equipment rental service. The objective of the rental program is to provide individuals temporary use of high technology equipment for trial use or as interim replacements while other devices are being repaired.

Determination of an applicant's qualifications for equipment rental, and the terms of that rental, are made following assessment of the applicant's needs and the utility of the equipment being provided. The Center retains flexibility in the determination of the rental terms, based upon competing needs for the equipment and the situation presented by each applicant. Although many pieces of equipment are used by the Center for other purposes, such as to support orientation, evaluation, and training, the Center reserves a pool of equipment large enough to enable short term rentals to between 25 and 35 persons annually. The rental program is restricted to residents of Ohio due to its principal funding through the Ohio Rehabilitation Services Commission.

The Adult Independence Development Center - The Adult Independence Development (AID) Center in Santa Clara, California offers a variety of services which support independent living for disabled residents of Santa Clara County.

As part of that mission, the AID Center operates an Equipment Loan and Donation program through which donations of used, but still useful, durable rehabilitation equipment are solicited. Donations are then lent out to clients, free of charge, on a temporary basis.

Interestingly, another way in which the AID Center facilitates exchange of used rehabilitation equipment is by reserving space in their monthly newsletter for placement of individual classified advertisements. As such, the AID Center serves as a conduit of used product information, enabling buyers and sellers to exchange equipment.

The third way in which used equipment is recycled is on a more permanent basis. Similar to the Goodwill and Salvation Army models, the support organization obtains used equipment, perhaps retrofits that equipment when necessary, and passes each device on to other individuals who can benefit from its use.

Center for Computer Assistance for the Disabled - The Center for Computer Assistance for the Disabled (C-CAD) in Arlington, Texas actively solicits donations of computer products to support its assistance activities. Much of the equipment that the Center does receive has been used before. Technical volunteers refurbish and retrofit that equipment to be used both for training and for lending purposes.

Since its inception, the Center has received over 80 computers, peripheral and software donations. Some 30 computers have been loaned out to persons with disabilities to facilitate vocational

pursuits. The terms of each loan tend to be informal. Loans are apparently made for the duration of need by the lendee.

Easter Seal Society of Iowa, Inc. - As noted earlier, the Easter Seal Society in Des Moines, Iowa operates an Equipment and Therapeutic Services program to assist persons with disabilities acquire necessary rehabilitation equipment. The most extensive service provided through that program is an equipment loan service.

The equipment loan service is well organized. The loan pool consists of nearly 13,000 pieces of equipment, primarily bathroom, bedroom and mobility/ambulatory devices. The Society purchases equipment which will either be sold to the client or loaned to them without cost for as long as they have need of it. Equipment that is sold and is no longer needed will be accepted by the Society as a donation. The equipment is refurbished internally by qualified repair personnel and readied for lending.

The application process for equipment loan is as follows. Each eligible applicant initiates the process by completing the Equipment and Therapeutic Services program's standard Basic Information Form. Eligibility is restricted to persons with physical disabilities who reside in the State of Iowa, and who are not living in a licensed care facility. The Basic Information Form includes background data on the applicant and diagnostic/prognostic information from a physician.

Applications for equipment loan are made to Equipment and Therapeutic Services staff. If the Society has the requested equipment in stock, it is shipped immediately to the applicant via a commercial freight company. Because of the reliance upon commercial delivery, the Society requests a \$10.00 delivery fee from each equipment lendee, if possible. If the appropriate equipment is not in stock, the Society does have some funds to acquire the necessary aid for inclusion in its loan pool.

Every piece of equipment is loaned for as long as the applicant has need of it, or until that person moves to a licensed care facility. When the client has Medicare/Medicaid and reimbursement can be obtained, the Society seeks that reimbursement. In most cases, 100% reimbursement is made because the Society has a number of Medicare qualified used pieces of equipment. If the client has no way of paying for the use of the equipment, it is then loaned at no charge. When equipment is no longer needed, it is returned to the Society where it is refurbished and loaned to another individual. If the equipment was paid for through the

individual's Medicare/Medicaid coverage, then the return of such equipment is encouraged and considered as a donation to the Society.

Since the inception of the equipment loan program in the early 1960's, some 5,000 disabled individuals have received rehabilitation equipment useful in support of more independent community living. In fiscal year 1984, roughly 2,000 persons were served through the equipment pool. The budget for that year was \$160,000.

Group Purchasing Opportunities

One final service with potential to support consumers of rehabilitation devices, is the provision of group purchasing opportunities. Group purchasing supports equipment financing because it lowers the costs of supplying and of procuring the equipment. It is a strategy with considerable potential, and warrants special attention.

A group purchase ensures a significant volume of sales for a particular product supplier, at a given point in time. The assurance of a volume sale enables the supplier to economize on certain costs associated with supply of the equipment, such as administrative and delivery costs. Since overall costs to the supplier are lowered, thereby lowering unit costs of each product in the group, suppliers often are willing to pass along a portion of the savings created by the volume exchange to the purchasing parties in the form of price discounts. Group purchasing, therefore, can be mutually beneficial to the supplier and to the consumers involved in the exchange.

Conceivably, volume purchasing holds particular merit for many specialized rehabilitation product markets. Demand within such markets is characteristically low compared to demand within mass markets, resulting in relatively high priced equipment. The economic relationship between low volume and high unit cost prevails within specialized product markets, and has generally been perceived as an unavoidable, negative characteristic of such markets. Yet, low demand may actually represent an advantage as well, in that, when low volumes are customary, volume purchase of even a relatively small number of devices can generate significant cost savings.

For example, demand for manual wheelchairs is generally acknowledged to be substantially lower than demand for bicycles. Conversely, the retail price of a wheelchair is higher than that of a bicycle. In fact, the difference in price is disproportionate to the difference in the costs of materials for the two products. A primary reason for this disproportion is that, in the aggregate, less wheelchairs are purchased compared to bicycles, meaning all the costs of supplying the former (production costs, marketing costs, distribution costs, etc.) are spread out over a significantly smaller number of products sold. Considering only the costs associated with making the final sale of each piece of equipment, it is relatively more expensive to sell and to distribute a wheelchair compared to a bicycle, because, again, those costs must be recouped through a lower volume of product sales in the former case.

Given this economic relationship between volume and unit cost, it presumably is possible to achieve greater cost savings through a smaller volume purchase of wheelchairs than of bicycles. Hypothetically, it may require a volume exchange of ten bicycles to match the savings created through a volume sale of only five wheelchairs, since a wheelchair supplier is recovering a larger cost savings per wheelchair than a bicycle supplier is saving per bicycle.

Using economic theory, therefore, it can be presumed that group purchasing of specialized rehabilitation aids has particular potential. Relatively smaller volume purchases will be necessary to generate cost savings and to create incentives for suppliers to offer price discounts.

Given the potential economic benefits of group purchasing for rehabilitation aids on a theoretical level, actual instances of group purchases seem unusually rare.

The Veterans Administration and Other Governmental Agencies - The largest volume purchases have been negotiated, traditionally, by the Veterans Administration (VA).

The VA has a substantial client pool with enough similar product needs to command significant discounts for such equipment as wheelchairs, hearing aids, prostheses, seat cushions, and a number of other assistive devices.

Within the last year the VA entered into an agreement with Kurzweil Computer Products, Inc. to purchase Kurzweil Reading Machines for under \$21,000 per machine, a 30% discounted price. This arrangement has been made as an attempt to increase the availability of Kurzweil Reading Machines for individual use. The 30% discount is possible because Kurzweil Computer Products anticipates resultant sales of significant numbers of Reading Machines. According to Kurzweil's National Marketing Director, 70 is the significant, or break even, number corresponding to such a substantial price discount.

In addition to VA beneficiaries, this 30% discounted rate for Reading Machines has been extended to purchases through all other federal, state or municipal governmental agencies. It is stipulated that all purchase orders include the VA's contract number, so that the administrative costs of processing each order will be minimized to ensure that the sale at the discounted price remains economical.

There have been instances, too, where various state vocational rehabilitation agencies have negotiated price discounts on selected rehabilitation products. Again, group purchases have been limited to those products which have been very frequently prescribed by vocational rehabilitation counselors.

Easter Seal Society of Iowa, Inc. - As described earlier, the Easter Seal Society in Des Moines, Iowa operates a rather extensive Equipment and Therapeutic Services program. One other service which the Society has provided through its equipment program deserves consideration.

Through acquisition of equipment and parts to run its equipment loan and maintenance services, Easter Seal of Iowa has developed a very strong rapport with a local product dealer. Since the Society frequently purchases devices and parts in fairly large volumes, the dealer began to offer a standard 20% discounted price to the Society for equipment, and 10% for parts purchased in volume. As the relationship between the Society and the commercial dealer has matured, those discounts have been extended, so that currently all products and parts, including those acquired in single units, are available to the Society at the discounted rates.

Indirectly, of course, these price discounts assist end users of the equipment purchased by the Easter Seal Society of Iowa. The discounts allow the Society to optimize use of its available resources, effectively increasing the numbers of persons who can be served through the Society's equipment loan and maintenance/repair services.

At one time, the Society experimented with a service that could support equipment users more directly. Until recently, the Equipment and Therapeutic Services program included an Individual's Purchase of Equipment service. This service was designed to pass the Society's 20% discount along to individual consumers. Anyone who wished to purchase a product for which the Society could acquire a discount were invited to order that product through the Society.

Recently this service was discontinued. According to the director of the equipment program, there was concern that excessive use of the discount for individual purchases would undermine the goodwill that had been developed between the Society and the local equipment dealer.

This concern is justifiable. It is uneconomical to routinely offer discounts on single purchases. A retail price generally

reflects the costs of supplying a product to a consumer, with some profit included as a return to the supplier. It is only through volume purchases, where some costs can be distributed over a larger number of products sold, effectively lowering unit cost, that price can be discounted while maintaining a business' viability.

Despite discontinuation of the Individual's Purchase of Equipment service, the experiences of the Easter Seal Society of Iowa demonstrate the potential for volume purchasing within commercial markets for rehabilitation equipment. The Easter Seal Society, although an individual purchaser, acquires equipment frequently enough and in sufficient volume to achieve a 20% price discount. Apparently this relationship has proven valuable enough to a commercial dealer to extend that discount to single purchases as well. Presumably, if a number of individuals were to organize a group purchase it would behoove a supplier to offer a similar type of arrangement.

Group purchase of specialized rehabilitation devices is an interesting issue and deserves further consideration, and perhaps experimentation. On a theoretical level, the possibilities of effecting volume discounts seem very plausible. Yet, actual experiences do not seem to support the theory, entirely. Why is this? Is it because volume sales of discounted products actually need to be quite large in order to break even? What would be realistic break even sales for various rehabilitation devices? These are interesting research questions which seem to warrant further study and demonstration beyond the scope of this paper.

Summary

The position has been made that encouraging more active participation by disabled individuals as consumers of commercial rehabilitative aids and devices is a promising and an appropriate goal for the independent living movement.

In support of this argument, it was reasoned that product consumerism is an important aspect of living independently, and hence falls under the purview of the independent living movement. In addition, it was pointed out that encouraging active consumerism of rehabilitative devices also can serve to facilitate other independent living pursuits through utilization of such devices. Finally, it was hypothesized that enhanced consumerism within commercial rehabilitation equipment markets would stimulate those markets, thereby expanding available commercial equipment options and improving the means by which that equipment is supplied.

Given the perceived promise of enhanced consumerism within commercial rehabilitation device markets, a question was raised regarding the means by which this potential might best be tapped. Since the independent living movement has been predicated upon providing support, in the form of services, accessible environments, and skills training, to disabled individuals striving to maximize their independence, it was reasoned that the provision of such support would be an effective approach to enhancing consumerism as well.

The remainder of this paper has been devoted to introducing and analyzing exemplary service programs which are already involved in providing valuable consumer support services. A number of approaches were studied that assist disabled individuals select, procure, and utilize commercial rehabilitative aids and devices. These strategies, and others not profiled in this paper, provide directions for the independent living movement to proceed toward enhancing consumerism within such commercial device markets.

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Source Book: A Technical Assistance Manual on Independent Living.
Houston: The Institute for Rehabilitation and Research, 1979.

APPENDIX

Appendix

Directory of Profiled Programs:

Adapted Living for Physically Handicapped Americans:

Ms. Kathryn Adams
ALPHA I
169 Ocean Street
South Portland, ME 04106

Adult Independence Development Center:

Mr. Jack Hall
President
Adult Independence Development Center
1190 Benton Street
Santa Clara, CA 95050

Assistive Device Center:

Ms. Helen Woodall
Resource Coordinator
Assistive Device Center
6000 J Street
Sacramento, CA 95819-2694

Associated Services for the Blind:

Mr. Larry Levine
Director
Electronic Aids Program
Associated Services for the Blind
919 Walnut Street
Philadelphia, PA 19107

Carroll Center for the Blind:

Ms. Rachel Rosenbaum
Executive Director
The Carroll Center for the Blind
770 Centre Street
Newtown, MA 02158

Center for Computer Assistance for the Disabled:

Mr. Jack Kishpaugh
Chairman
C-CAD
2501 Avenue J
No. 100
Arlington, TX 70011

Cheever Publishing, Inc.:

Mr. Raymond Cheever
President
Cheever Publishing, Inc.
P.O. Box 700
Bloomington, IL 61702-0700

Columbia Lighthouse for the Blind:

Mr. Charles Fegan
Executive Director
Columbia Lighthouse for the Blind
1421 P Street, N.W.
Washington, D.C. 20005

Committee on Personal Computers and the Handicapped:

Mr. Thomas Shworles
COPH-2
803 Monticello Place
Evanston, IL 60201

Ms. Margaret Pfrommer
COPH-2
2030 Irving Park Road
Chicago, IL 60618

Community Loan Closet for Neurologically Impaired:

Ms. Diane Brown
Speech-Language Pathologist
Poudre Valley Hospital
Rehabilitation Department
1024 Lemay
Fort Collins, CO 80524

Computers for Severely Disabled Project:

Mr. Roger Wellman
Executive Director
Santa Cruz County Easter Seal Society
621 A Water Street
Santa Cruz, CA 95060

Easter Seal Society of Iowa, Inc.:

Ms. Mary Lusthoff
Director
Equipment and Therapeutic Services
Easter Seal Society of Iowa, Inc.
P.O. Box 4002
Des Moines, IA 50333

Eastern Paralyzed Veterans Association:

Mr. Ed Rowan
Eastern Paralyzed Veterans Association
Wheelchair Repair Service
Building 102
Fort Totten, NY 11359

Florida Lions Conklin Center:

Ms. Jackie Forman
Equipment Rental Program
Conklin Center for the Multihandicapped Blind
405 White Street
Daytona Beach, FL 32014

Fort Collins Community Development/Block Grant Program:

Ms. Diana Royval
Housing Rehabilitation Assistant
Staff Liaison to the Commission on Disability
City of Fort Collins
Community Development/Block Grant Program
P.O. Box 580
Fort Collins, CO 80522

Independence, Incorporated:

Ms. Mona McCoy
Executive Director
Independence, Inc.
1910 Haskell
Lawrence, KS 66044

National Rehabilitation Information Center:

Ms. Marion Hall
ABLEDATA
National Rehabilitation Information Center
4407 Eighth Street, NE
The Catholic University of America
Washington, DC 20017

PAM Assistance Centre:

Ms. Donna Heiner
Special Projects Consultant
Interim Director, LLRC
PAM Assistance Centre
601 West Maple
Lansing, MI 48906

Project Job Site:

Mr. Steven Mendelsohn
Director
Job Site Programs
Vera Institute of Justice
22 West 38th Street
11th Floor
New York, NY 10018

Society for Technology and Rehabilitation:

Ms. Linda Barr
Director
Society for Technology and Rehabilitation
1820 Richmond Road, SW
Calgary, Alberta T2T 5C7
Canada

STORER Center, The Cleveland Society for the Blind:

Mr. Jeff Moyer
Director of Rehabilitation
Cleveland Society for the Blind
1901 East 101 Street
Cleveland, OH 44106

United Cerebral Palsy Association of Michigan, Inc.:

Mr. Robert Mayberry
Executive Director
United Cerebral Palsy Association of Michigan, Inc.
202 East Boulevard Drive
Flint, MI 48503